Pushing the Envelope			
2007 Mathematics			
Core Curriculum			
Utah Mathematics			
Grade 5			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	UT	MA.5.4.2.a	Quantify volume by finding the total number of same-sized units of volume needed to fill the space without gaps or overlaps.
Chemistry (pgs. 25-41)	UT	MA.5.4.2.b	Recognize that a cube having a 1 unit edge is the standard unit for measuring volume expressed as a cubic unit.
Physics and Math (pgs. 43-63)	UT	MA.5.2.1.b	Determine a rule for the pattern using organized lists, tables, objects, and variables.
Physics and Math (pgs. 43-63)	UT	MA.5.5.2.a	Describe the results of experiments involving random outcomes using a variety of notations (e.g., 4 out of 9, 4/9).

Pushing the Envelope			
2007 Mathematics			
Core Curriculum			
Utah Mathematics			
Grade 6			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	UT	MA.6.2.2.c	Evaluate and simplify expressions and formulas, substituting given values for the variables (e.g., 2x + 4; x = 2; therefore, 2 (2) + 4 = 8).
Chemistry (pgs. 25-41)	UT	MA.6.2.2.c	Evaluate and simplify expressions and formulas, substituting given values for the variables (e.g., 2x + 4; x = 2; therefore, 2 (2) + 4 = 8).
Physics and Math (pgs. 43-63)	UT	MA.6.1.1.a	Recognize a rational number as a ratio of two integers, a to b, where b is not equal to zero.
Physics and Math (pgs. 43-63)	UT	MA.6.1.2.c	Find equivalent forms for common fractions, decimals, percents, and ratios, including repeating or terminating decimals.
Physics and Math (pgs. 43-63)	UT	MA.6.1.4.b	Recognize that ratios derive from pairs of rows in the multiplication table and connect with equivalent fractions.
Physics and Math (pgs. 43-63)	UT	MA.6.1.5.d	Solve problems involving ratios and proportions.
Physics and Math (pgs. 43-63)	UT	MA.6.2.2.a	Solve single variable linear equations using a variety of strategies.
Physics and Math (pgs. 43-63)	UT	MA.6.2.2.c	Evaluate and simplify expressions and formulas, substituting given values for the variables (e.g., 2x + 4; x = 2; therefore, 2 (2) + 4 = 8).
Rocket Activity (pgs. 69-75)	UT	MA.6.2.2.c	Evaluate and simplify expressions and formulas, substituting given values for the variables (e.g., 2x + 4; x = 2; therefore, 2 (2) + 4 = 8).

Pushing the Envelope			
2007 Mathematics			
Core Curriculum			
Utah Mathematics			
Grade 7 (Math 7)			
Activity/Lesson	State	Standards	
Chemistry (pgs. 25-41)	UT	MA.7.4.2.b	Measure length, area, volume, and angles to appropriate levels of precision.
Physics and Math (pgs. 43-63)	UT	MA.7.1.3.a	Find equivalent forms for common fractions, decimals, percents, and ratios, including repeating or terminating decimals.
Physics and Math (pgs. 43-63)	UT	MA.7.1.4.b	Recognize percents as ratios based on 100 and decimals as ratios based on powers of 10.
Physics and Math (pgs. 43-63)	UT	MA.7.2.1.a	Solve ratio and rate problems using informal methods involving multiplication and division.
Physics and Math (pgs. 43-63)	UT	MA.7.2.1.b	Solve percent problems using ratio and proportion, including problems involving discounts, interest, taxes, tips, and percent increase or decrease.

Pushing the Envelope			
2007 Mathematics			
Core Curriculum			
Utah Mathematics			
Grades 7-8			
Activity/Lesson	State	Standards	
Chemistry (pgs. 25-41)	UT	MA.7-8.4.2.a	Derive formulas for and calculate surface area and volume of right prisms and cylinders using appropriate units.
Chemistry (pgs. 25-41)	UT	MA.7-8.4.2.b	Explain that if a scale factor describes how corresponding lengths in two similar objects are related, then the square of the scale factor describes how corresponding areas are related and the cube of the scale factor describes how corresponding volumes are related.
Chemistry (pgs. 25-41)	UT	MA.7-8.4.2.c	Find lengths, areas, and volumes of similar figures, using the scale factor.
Chemistry (pgs. 25-41)	UT	MA.7-8.4.2.d	Select appropriate two- and three-dimensional figures to model real-world objects, and solve a variety of problems involving surface areas and volumes of cylinders and prisms.
Physics and Math (pgs. 43-63)	UT	MA.7-8.2.2.a	Set up and solve problems involving proportional reasoning using variables.
Physics and Math (pgs. 43-63)	UT	MA.7-8.2.2.c	Solve ratio and rate problems using informal methods.
Physics and Math (pgs. 43-63)	UT	MA.7-8.2.3.d	Define the slope of a line as the ratio of the vertical change to the horizontal change between two points, and show that the slope is constant using similarity of right triangles.
Physics and Math (pgs. 43-63)	UT	MA.7-8.3.2.a	Evaluate algebraic expressions, including those with whole number exponents, when given values for the variable(s).

Activity/Lesson	State	Standards	
Physics and Math (pgs. 43-63)	UT	MA.7-8.5.2.c	Graphically summarize data of a single variable using histograms and box-and-whisker plots.
	Pushing the Envelope		
	2007 Mathematics		
	Core Curriculum		
Utah Mathematics			
Grades 7-12 (Algebra 1)			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	UT	MA.7-12.3.1.a	Simplify and evaluate monomial expressions and formulas.
Chemistry (pgs. 25-41)	UT	MA.7-12.3.1.a	Simplify and evaluate monomial expressions and formulas.
Physics and Math (pgs. 43-63)	UT	MA.7-12.1.1.a	Define a rational number as a point on the number line that can be expressed as the ratio of two integers, and points that cannot be so expressed as irrational.
Physics and Math (pgs. 43-63)	UT	MA.7-12.2.2.d	Interpret the slope of a linear function as a rate of change in real-world situations.
Physics and Math (pgs. 43-63)	UT	MA.7-12.3.1.a	Simplify and evaluate monomial expressions and formulas.
Physics and Math (pgs. 43-63)	UT	MA.7-12.3.2.b	Solve real-world problems involving constant rates of change.
Physics and Math (pgs. 43-63)	UT	MA.7-12.4.1.b	Determine whether the relationship between two variables is approximately linear or non-linear by examination of a scatter plot.
Physics and Math (pgs. 43-63)	UT	MA.7-12.4.1.c	Characterize the relationship between two linear related variables as having positive, negative, or approximately zero correlation.
Rocket Activity (pgs. 69-75)	UT	MA.7-12.3.1.a	Simplify and evaluate monomial expressions and formulas.
	Pushing the Envelope		
	2007 Mathematics		
	Core Curriculum		
Utah Mathematics			
Grades 8-12			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	UT	MA.8-12.4.1.c	Determine perimeter, area, surface area, lateral area, and volume for prisms, cylinders, pyramids, cones, and spheres when given the formulas.